

An Abnormally Colored Redbanded Rockfish, *Sebastes babcocki*

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Four species of eastern North Pacific rockfishes of the genus *Sebastes* are easily distinguished from their congeners by the coloration characteristic of broad lateral banding. These species are the Tiger Rockfish, *S. nigrocinctus*; Treefish, *S. serripes*; Flag Rockfish, *S. rubrivinctus*; and Redbanded Rockfish, *S. babcocki*.

These species are shown to be closely related and have been placed in the *Sebastichthys* clade by Hyde and Vetter (2007). The Tiger Rockfish and Treefish are distinguished by differences in their general body form and coloration of the banding pattern. The Treefish invariably exhibits alternating black, brown, or dark green and yellow bars, and the lips are distinctly pink to red (rarely without coloration). The Tiger Rockfish manifests greater variation in banding with the darker bars being primarily red, but can vary from reddish-black to reddish-brown. The alternating lighter bars are mainly white, but occasionally show a reddish hue. The Flag and Redbanded rockfishes possess alternating red and white bars (Love et al., 2002). The general similarity in body shape and color pattern between the latter two species was cause for them to be considered conspecific from shortly after the year of description of *S. babcocki* (Thompson, 1915) until Rosenblatt and Chen (1972) clarified the distinction of these species and pointed out a number of meristic and morphological characteristics that definitively separate these two species. The Flag Rockfish was described in the late 1800's (Jordan and Gilbert, 1880).

On 10 February 2004, a uniformly red rockfish (Fig. 1) was encountered by Diane Haas, then a Fishery Technician with the Pacific States Marine Fisheries Commission, during routine sampling of commercial groundfishes. The F/V *Alex Kevin D* had unloaded three market categories of groundfishes: Longspine Thornyhead, *Sebastolobus altivelis*; Shortspine Thornyhead, *S. alascanus*; and Blackgill Rockfish, *Sebastes melanostomus*, which were to be sampled. The uniformly red rockfish was included in the Blackgill Rockfish market category, where a 50 pound cluster was randomly selected from a total landing of 764 pounds. The species composition of the cluster consisted of Blackgill Rockfish, one Rosethorn Rockfish, *S. helvomaculatus*, and the uniformly red rockfish. Also present in the landing, but not included in the sample, were at least two Rougheye Rockfish, *S. aleutianus*, (from California the species is now considered as Blackspotted Rockfish, *Sebastes melanostictus* [Orr and Hawkins, 2008]). The fishes were taken in Monterey Bay (ca. 36°47' N, 122°07' W) by commercial longline gear on the continental slope at a depth of 200–260 fathoms (366–475 meters).

The red rockfish was not immediately identifiable with any of the red-colored, outer shelf-upper slope rockfishes normally encountered off central California and was



Figure 1. Uniformly red Redbanded Rockfish, *Sebastes babcocki*, from Monterey Bay, sampled from F/V Alex Kevin D, 10 February 2004.

procured for further analysis in the laboratory. Upon examination of the general morphology of the specimen, we determined it to be a Redbanded Rockfish, typical in all aspects of *S. babcocki* with the exception of coloration (i.e., essentially uniformly red and lacking vertical red and white banding). The rockfish measured 557 mm TL, 546 mm FL, and 465 mm SL, and weighed 2564.0 g when fresh. The fish was a mature male and possessed a large genital papilla. Counts were: D XIII, 14; A III, 7; Pectoral L 9/18, R 8/18 (unbranched rays/total rays); Gill rakers L 9+22=31, R 8+21=29. The age was estimated to be 57 years from otoliths using the break and burn method (D. Pearson, NOAA, NMFS, pers. comm.). The general morphology of the preopercular bone was typical for the species; the third spine is acutely hooked downward in *S. babcocki*



Figure 2. General morphology of preopercular bone from Redbanded Rockfish, *Sebastes babcocki*; note configuration of 3rd preopercular spine. Bone from specimen (548 mm SL, 655 mm TL) taken off Davenport, Calif., 170–215 fm., F/V Sunrise III, set gill net, 5 April 1995.

(Fig. 2), a condition we know of in only one other species, the Semaphore Rockfish, *S. melanosema*.

Correct identification of any fish species is extremely important due to the implications it may have in fisheries management. The species compositions determined during routine sampling of market categories are used to estimate total landings of component species. These estimates, along with biological information collected with each species, such as length and age composition, are utilized in stock assessments. Because individual species often have different quotas and fishing regulations, accurate identification is critical to the regulatory process. For instance, a number of red-colored rockfishes fall under the category of shelf rockfishes while Redbanded Rockfish is categorized as a slope species. The misidentification of a quota-managed species could result in delayed fishery closures (Faunce, 2011).

Acknowledgements

We thank the crew of the F/V *Alex Kevin D* for the anomalously colored rockfish (*S. babcocki*), Don Pearson for ageing the specimen, and Donna Kline for providing useful comments.

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